EFFECTIVE 07/01/09

Summary of Administrative Revisions to Standard Specifications

200 Series

Section	Description of Revision

ALL	• Formatting in accordance with CSI standards
	  o All Paragraphs identified by a letter
	  ▪ Sub-paragraphs identified by a number
	• Replace pronouns with appropriate noun references
	• Delete number word references and retain numeric number only
	• Modify grammar structure for clarity
	• Edit cross-references
	• Delete references to self (Uniform Standard Specifications)
	• Delete metric units
	• Delete references to design and procedural guidelines
	• Delete references to codes and standards that do not specifically relate to the section

203	• 203.03.18.A – Remove reference to geotechnical engineering report and clarify moisture and density range requirements • 203.03.18.E & F, and 203.03.19.A – Remove reference to geotechnical engineering report and add “unless otherwise specified”
207	• 207.02.01.A – Remove reference to geotechnical engineer report • 207.03.01.B – Remove reference to geotechnical engineer and add “unless otherwise specified or approved by the Engineer”

SECTION 201

CLEARING AND GRUBBING

~~01~~DESCRIPTION

201.01.01 GENERAL

A. This work shall consist of clearing, grubbing, removing, and disposing of all vegetation and debris within the limits of construction, except such objects as are designated to remain or be removed in accordance with other sections of these specifications. This work shall also include the preservation from injury or defacement of all vegetation and objects designated to remain.

~~02~~MATERIALS

201.02.01 BLANK

~~03~~CONSTRUCTION

201.03.01 GENERAL

A. The Engineer will establish clearing limits and designate all trees, shrubs, plants, and other things to remain. Areas to be cleared will be as set forth in Subsection~~-~~ 201.03.02, "Areas to be Cleared." The Contractor shall preserve all things designated to remain. Paint required for cut or scarred surfaces of trees or shrubs selected for retention shall be an approved asphaltum base paint prepared especially for tree surgery. Subsection~~-~~ 107.21, "Dust ~~Nuisance~~Control" shall be complied with.

201.03.02 AREAS TO BE CLEARED

A. Areas to be cleared shall be one or more of the following:

1. The entire area upon which the project construction is to be performed to the width of the excavation and embankment slope lines.
2. Ditch and dike areas to the width of the slope lines.
3. Areas on which service roads or ramps, streets, approaches, and all other accessory roads and connections are to be constructed, such areas to extend to the width of the excavation and embankment slope lines.
4. Designated material sites and designated borrow pits.
5. Areas designated in the plans or Special Provisions.

201.03.03 CLEARING AND GRUBBING

A. Surface objects and trees, stumps, roots, and other protruding obstructions, designated for removal, shall be cleared or grubbed or both. Unless otherwise specified, the Contractor may leave stumps and nonperishable solid objects provided they do not extend more than ~~six (~~6~~)~~ inches ~~(15 centimeters)~~ above the ground line or low water level, and are a minimum of ~~three (~~3~~)~~ feet ~~(1 meter)~~ below subgrade or embankment slope.

B. The Engineer may permit sound stumps to be cut off not more than ~~six (~~6~~)~~ inches ~~(15 centimeters)~~ above the ground and to be left outside of the construction limits of cut and

embankment areas, except in the area to be rounded at the top of backslopes where stumps are to be cut off flush with or below the surface of the final slope line.

C. Where feasible, trees shall be felled toward the center of the area to be cleared. Where trees cannot be felled without danger to traffic or injury to other trees, structures, or property, they trees shall be cut in sections from the top down.

D. There shall be no burning unless approval has been given in writing by the Clark County Air Pollution Control -- Air Pollution Control Officer and this approval concurred with by the Engineer. If perishable material is burned, it shall be burned under the constant care of competent watchmen at such times and in such a manner that anything designated to remain on the right-of-way, the surrounding forest cover, or other adjacent property will not be jeopardized. Burning shall be done in accordance with applicable laws, regulations, and ordinances.

E. When permitted by the Engineer, materials, debris, and perishable materials may be removed from the right-of-way and disposed of at locations off the project outside the limits of view from the project with the written permission of the property owner on whose property the materials and debris are placed. The Contractor shall make all necessary arrangements with property owners for obtaining suitable disposal locations and the cost involved shall be included in the unit price bid. Attention is directed to Subsection 107.14, "Disposal of Material Outside Project Right-of-Way."

F. Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable materials and compacted in accordance with Subsection 203.03.1718, "Compaction, Dirt Embankment" or Subsection 203.03.1819, "Compaction, Rock Embankment" if within the staked prism. Payment for backfilling and compacting will be considered subsidiary to other items of the work and no further compensation will be made therefore.

G. All merchantable timber in the clearing area shall become the property of the Contractor unless otherwise provided. Timber and debris may be stored or decked within the right-of-way only in areas approved by the Engineer and mustshall be removed prior to final acceptance of the project.

H. Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be removed as directed. Branches of trees extending over the road shall be trimmed to give a clear height of twenty (20) feet (6 meters) above the road surface. All trimming shall be done by skilled workmen and in accordance with good tree surgery practices.

I. Scalping shall include the removal of material such as brush, roots, sod, grass, residue of agricultural crops, sawdust, and decayed vegetable matter from the surface of the ground.

J. Unless otherwise permitted by the Engineer, the Contractor shall scalp areas where excavation or embankment is to be made, except that mowed sod need not be removed where the embankment to be constructed is four (4) feet (1.2 meters) or more in height to subgrade elevation.

04METHOD OF MEASUREMENT

201.04.01 MEASUREMENT

A. Measurement will be by one or more of the following alternate methods:

1. **Area Basis:** The work to be paid for will be the number of acres ~~(hectares)~~ and fractions thereof acceptably cleared or grubbed or both within the limits staked for clearing and grubbing by the Engineer. Unless otherwise specified, material sites, borrow pits, and areas not shown on the plans or not staked for clearing and grubbing will not be measured for payment.

2. **Lump Sum Basis:** When the bid schedule contains a clearing and grubbing lump sum item, no measurement of area will be made.

3. **Linear Basis:** When a linear unit quantity is shown on the bid schedule, the length will be measured along the construction centerline in stations or miles ~~(meters or kilometers)~~.

4. **Individual Unit Basis:**

   a. The diameter of trees will be measured at a height of ~~twenty-four (~~24~~)~~ inches ~~(61 centimeters)~~ above the ground. Trees less than ~~six (~~6~~)~~ inches ~~(15 centimeters)~~ in diameter will be classed as brush.

   b. Stumps of over ~~six (~~6~~)~~ inches ~~(15 centimeters)~~ in diameter will be measured by individual count.

B. All measurements will be made in accordance with Subsection 109.01, "Measurement of Quantities."

~~05~~BASIS OF PAYMENT

201.05.01 PAYMENT

A. The accepted quantities of clearing and grubbing measured as provided in Subsection 201.04.01, "Measurement," will be paid for at the contract prices as follows:

1. **Area Basis:** The quantities determined will be paid for at the contract unit price bid per acre ~~(hectare)~~.

2. **Lump Sum Basis:** When the bid schedule contains a lump sum item, the contract lump sum price bid will be paid and shall be full compensation for the work.

3. **Linear Basis:** When linear quantities are shown in the bid schedule, the quantities will be paid at the contract unit price bid for this item.

4. **Individual Unit Basis:**

   a. When individual unit quantities are shown on the bid schedule, the accepted quantities will be paid for at the contract unit price bid for the respective items.

   b. Where trees are designated for removal on a unit "each" basis, payment therefor will be for their complete removal unless stumps are permitted to remain as set forth in Subsection 201.03.03, "Clearing and Grubbing."

5. **Exclusion:** When the bid schedule does not contain an estimated quantity or lump sum item for clearing and grubbing, the work will not be paid for directly, but will be considered as a subsidiary obligation of the Contractor under other contract items.

B. All payments will be made in accordance with Subsection 109.02, "Scope of Payment."

C. Payment will be made under:

PAY ITEM	PAY UNIT
Clearing and Grubbing..... Acre ~~(hectare)~~, Station ~~(30 meters)~~, Miles ~~(kilometers)~~,	Lump Sum
Remove Trees	Each
Remove Stumps	Each

SECTION 202

REMOVAL OF STRUCTURES AND OBSTRUCTIONS

~~01~~DESCRIPTION

202.01.01 GENERAL

A. This work shall consist of the removal, wholly or in part, and satisfactory disposal of all buildings, fences, guardrails, structures, old pavement, abandoned pipelines, and any other obstructions which are not designated or permitted to remain, except for the obstructions to be removed and disposed of under other items in the contract. It shall also include the salvaging of designated materials and backfilling the resulting trenches, holes, and pits.

~~02~~MATERIALS

202.02.01 BLANK

~~03~~CONSTRUCTION

202.03.01 GENERAL

A. The Contractor shall raze, remove, and dispose of all buildings and foundations, structures, guardrail, culvert markers and guide posts, fences, and other obstructions, any portions of which are on the right-of-way, except utilities and those for which other provisions have been made for removal. All designated salvable material shall be removed, without unnecessary damage, in sections or pieces which may be readily transported, and shall be stored by the Contractor at specified places within the project limits. Unusable material shall be disposed of in accordance with Subsection~~s~~ 107.14, "Disposal of Material Outside Project Right-of-Way." Basements or cavities left by structure removal shall be filled to the level of the surrounding ground and, if within the prism of construction, shall be compacted in accordance with Subsection~~s~~ 203.03.~~17~~18, "Compaction, Dirt Embankment" or Subsection 203.03.~~18~~19, "Compaction, Rock Embankment."

202.03.02 REMOVAL

A. Bridges, culverts, and other drainage structures in use by traffic shall not be removed until satisfactory arrangements have been made to accommodate traffic.

B. All operations necessary for the removal of any existing structure which might endanger the new construction shall be completed prior to the construction of the new work. No equipment or devices shall be used which might damage structures, facilities, or properties which are to be preserved and retained.

C. Unless otherwise directed, the substructures of existing structures shall be removed down to the natural stream bottom and those parts outside of the stream shall be removed down one foot below natural ground surface. Where such portions of existing structures lie wholly or in part within the limits for a new structure, they shall be removed as necessary to accommodate the construction of the proposed structure.

D. Operations necessary for the removal of an existing structure or obstruction, which may damage new construction, shall be completed prior to placing the new work.

E. Bituminous pavement shall be removed to clean straight lines. Saw cutting of edges to be joined is required. Where only the surface of existing bituminous pavement is to be removed by heater-planing, or by other approved methods, a minimum laying depth of ~~one (~~1~~)~~ inch ~~(2.5 centimeters)~~ of new pavement material shall be provided at the joint line. Where bituminous pavement adjoins a trench, the edges adjacent to the trench shall be saw cut to neat straight lines before resurfacing.

F. Concrete pavement shall be removed to neatly sawed edges. Saw cuts shall be made to a minimum depth of 1~~-~~1/2 inches ~~(3.8 centimeters)~~. If a saw cut in concrete pavement falls within ~~three (~~3~~)~~ feet ~~(1 meter)~~ of a construction joint, cold joint, expansion joint, or edge, the concrete shall be removed to the joint or edge. The edges of existing concrete pavement adjacent to trenches, where damaged subsequent to saw cutting of the pavement, shall again be saw cut to neat straight lines for the purpose of removing the damaged pavement areas. Such saw cuts shall be either parallel to the original saw cuts or shall be cut on an angle which departs from the original saw cut not more than ~~one (~~1~~)~~ inch in each ~~six (~~6~~)~~ inches ~~(2.5 centimeters in 15 centimeters)~~.

G. Concrete curb, walk, gutters, cross gutters, driveways, and alley intersections shall be removed to nearest score line or joint.

H. In removing manholes, catch basins, and inlets, any live sewers connected to item shall be rebuilt and properly reconnected and a satisfactory by~~-~~pass service shall be maintained during such construction operations. When abandoning manholes, catch basins, and inlets, they shall be thoroughly cleaned and existing pipe connections shall be plugged with concrete of the class and grade specified for structures. The portions of the structures shall then be removed to the required elevations and any necessary backfill shall be placed and compacted to specifications.

202.03.03 EXTENSIONS

A. Where existing culverts and bridges are to be extended or otherwise incorporated in the new work, only such part or parts of the existing structure shall be removed as is necessary to provide a proper connection to the new work. The connecting edges shall be cut, shaped, and trimmed to the required lines and grades without weakening or damaging the part of the structure to be retained. Reinforcing bars which are to be left in place, so as to project into the new work as dowels or ties, shall not be injured during removal of concrete.

202.03.04 CLOSING CULVERTS

A. Existing culverts within construction limits, the top of which are ~~five (~~5~~)~~ feet ~~(1.5 meters)~~ or more below finished roadway grade, shall be abandoned and closed unless otherwise noted on the plans. The headwalls of such culverts, or any part of the structure that is within ~~three (~~3~~)~~ feet ~~(1 meter)~~ of the finished grade line shall be removed. The ends of the culvert shall be completely filled with satisfactory soil for a distance of at least ~~two (~~2~~)~~ feet ~~(0.6 meter)~~, plus the height of the opening of the structure.

202.03.05 SALVAGE

A. When specified, gravel, roadmix, or plantmix surface suitable for reuse shall be removed to the depth required and surfacing so removed shall be carefully salvaged and placed in compact stockpiles at locations approved by the Engineer. Care shall be exercised to prevent contamination of stockpiled material. Any remaining unsuitable material shall be

scarified and incorporated in embankment as set forth in Section 203, "Excavation and Embankment."

B. Fences and gates designated for reuse shall be removed in such a manner that all material can be salvaged. Wire shall be carefully removed from the posts and rolled in rolls of a size that can be conveniently handled. Posts shall be removed by methods that will keep breakage to a minimum.

C. Guardrail, culvert markers, and guide posts designated for reuse shall be removed in such a manner that all material can be salvaged. Bolts, supports, and other hardware shall be removed from all rails, plates, and posts and all parts shall be sorted and stored at the locations specified. Rail, plates, and posts shall be properly stacked and miscellaneous hardware shall be stacked or boxed and reasonable care exercised in handling, storage, and preservation of materials as will ~~insure~~ensure the maximum salvage value for the entire operation. Attention is directed to Section 618, "Guardrail," and Section 619, "~~Culvert~~Object Markers and Guide Posts."

D. When specified for salvage, structural steel removed from old structures shall be stored in a neat and presentable manner on blocking and at locations suitable for loading. Structures or portions thereof which are specified for re-erection shall be stored in separate piles.

E. When ~~relay~~re-lay culvert pipe is required, the Contractor shall remove the pipe in such a manner as not to damage the material in any way. If no particular pipe is noted for ~~relay~~re-lay, the Contractor shall salvage and clean sufficient amount of the best available pipe to satisfy the ~~relay~~re-lay pipe item. ~~Attention is directed to Subsection 604.03.04, "Relay Culvert Pipe."~~

F. Timber or piling from all structures designated to be salvaged shall have all nails and bolts removed therefrom and shall be stored in neat piles at locations suitable for loading.

202.03.06 DISPOSING OF MATERIALS

A. Unless otherwise provided, excavated material shall be used in backfilling excavations made in removing the structure, in constructing embankment, or otherwise disposed of in a manner satisfactory to the Engineer.

B. When the placement of riprap and similar structures is included in the proposal, suitable broken concrete or masonry removed from old structures may be used in such construction. Any concrete or masonry which cannot be placed in backfills or embankments or used as riprap, shall be disposed of in accordance with Subsection 107.14, "Disposal of Material Outside ~~Highway~~Project Right-of-Way." The material shall not be placed where it will obstruct any drainage course.

C. When concrete or masonry is placed in embankments, it shall be placed in accordance with Subsection 203.03.~~15~~16, "Embankment Material~~s~~."

~~04~~METHOD OF MEASUREMENT

202.04.01 MEASUREMENT

A. When the contract stipulates that payment will be made for removal of structures and obstructions on a lump sum basis, the pay item will include removal of all structures and obstructions encountered within the right-of-way in accordance with the provisions of this section. Where the proposal stipulates that payment will be made for the removal of

specific items on a unit basis, measurement will be made by the unit stipulated in the contract.

B. The length of pipe removed will be measured in linear feet ~~(meters)~~ by measuring in place prior to removal.

C. All measurements will be made in accordance with Subsection ~~-~~ 109.01, "Measurement of Quantities."

~~05~~BASIS OF PAYMENT

202.05.01 PAYMENT

A. The accepted quantities of removal of structures and obstructions will be paid for at the contract lump sum price bid, which ~~price~~ shall be full compensation for removing and disposing of the obstructions in accordance with the contract, including excavation and subsequent backfill.

B. Specific obstruction items stipulated for removal and disposal under unit price pay items will be paid for at the contract unit price bid per unit specified in the proposal, which ~~price~~ shall be full compensation for removal and disposal of such items, excavation, and subsequent backfill incidental to their removal. The price shall also include salvage of materials removed, their custody, preservation, storage on the right-of-way, and disposal as provided herein.

C. When the proposal does not include any pay item or an appropriate pay item for removal of any structure or obstruction as set forth in this section, such work shall be performed and payment therefor will be considered as subsidiary to other items of work. No additional compensation will be allowed.

D. All payments will be made in accordance with Subsection ~~-~~ 109.02, "Scope of Payment."

E. Payment will be made under:

PAY ITEM	**PAY UNIT**
Removal of Structures and Obstructions	Lump Sum
Removal of (Item)……	Each, Linear Feet ~~(Meters)~~, Stations ~~(30 Meters)~~, Miles ~~(Kilometers)~~, Square Yards ~~(Square Meters)~~

SECTION 203

EXCAVATION AND EMBANKMENT

DESCRIPTION

203.01.01 GENERAL

A. This work shall consist of grading and excavating the roadway, excavating borrow pits, removing slide material, and excavating ditches and stream channels and satisfactorily disposing of all excavated material and all work necessary for the construction and completion of cuts, embankments, slopes, ditches, dikes, stream channels, approaches, parking areas, intersecting driveways and highways, and subsidiary work. Exceptions are slope rounding, structure excavation, or other separately designated pay items of work, which are made a part of the contract. All work shall be in conformity with the alignment, grades, and cross sections shown on the plans or established by the Engineer.

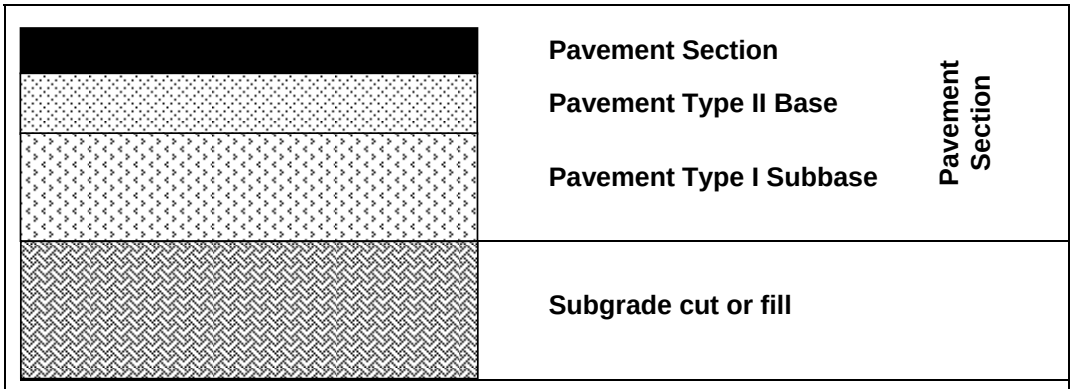

Figure 1- Definition of Terms

~~**409.01.02REFERENCE CODES AND STANDARDS:**~~

~~1.Uniform Standard Specifications for Public Works' Construction Off-Site Improvements, Clark County Area, Nevada that will henceforth be referred to as "USS"~~

~~2.Contract Special Provisions and Drawings~~

~~3.Nevada Revised Statutes (NRS) 338.176, Nevada Administrative Code (NAC) 625.550~~

~~4.Most current ASTM, AASHTO, or Nevada Department of Transportation (NDOT) test and inspection procedures~~

~~5.IQAC procedures at:~~

~~www.accessclarkcounty.com/depts/public_works/Pages/iqac.aspx~~

~~02~~MATERIALS

203.02.01 ROADWAY EXCAVATION

A. Roadway excavation shall consist of all excavation involved in grading and constructing the roadway and appurtenances, irrespective of the nature or type of material encountered; except excavation designated as structure excavation, drainage excavation, channel excavation, and borrow excavation when these items are provided as items of

work under the contract. Dividing the project into construction stages shall not be construed as separate material classifications.

203.02.02 DRAINAGE EXCAVATION

A. Drainage excavation shall include all excavation in the construction of open ditches less than ~~twelve (~~12~~)~~ feet ~~(3.7 meters)~~ in bottom width, excepting ditches that are part of the roadway prism as shown in the plans. The nature or type of material encountered shall have no bearing on the classification of material.

203.02.03 CHANNEL EXCAVATION

A. ~~:~~ Channel excavation shall include all excavation in the construction of open ditches or stream channels with a bottom width of ~~twelve (~~12~~)~~ feet ~~(3.7 meters)~~ or more with the exception of ditches that are part of the roadway prism as shown in the plans. The nature or type of material encountered shall have no bearing on the classification of material.

203.02.04 BORROW

A. Borrow shall consist of approved material excavated and used in the construction of fills, or for other construction purposes. Borrow shall be material~~, which~~ that is excavated from sources~~,~~ specified in the Special Provisions or designated by the Engineer. The source of material to be excavated shall be approved in advance by the Engineer. Borrow shall be excavated to the lines and grades established by the Engineer.

B. The Contractor shall notify the Engineer, sufficiently in advance, of opening any borrow site so that adequate time will be allowed for testing the material and establishing cross section elevations and measurements of the ground surface. The widening of roadway cuts shall be considered as roadway excavation and not as borrow, unless otherwise specified. Borrow excavation will not be classified according to type or character of material encountered in the borrow area unless otherwise required in the Special Provisions.

203.02.05 SELECTED BORROW

A. Selected borrow shall consist of approved material required for the construction of embankments within the required limits shown on the plans or directed by the Engineer, and shall be obtained from approved sources.

B. Selected borrow shall conform to the requirements set forth in the Special Provisions.

~~03~~CONSTRUCTION

203.03.01 ROADWAY

A. All excavation shall be made true to lines and grades staked by parties under the supervision of a Nevada licensed professional land surveyor working for the Engineer or Contractor and shall be so conducted as to avoid removing or loosening any material outside the required slopes. If any material is so disturbed, it shall be replaced and thoroughly compacted to the required cross section, unless such replacement is impractical as determined by the Engineer.

B. The work done under this section shall begin at some definite point or points on the project subject to the approval of the Engineer, and the work shall progress toward completion in an orderly manner. The roadway shall be graded to full cross section width before placing base or surfacing of any type, unless otherwise specified.

C. Intersecting roads, service highways, ramps, approaches, and driveways shall be graded as shown on the plans or established by the Engineer.

D. All suitable material removed from the excavation shall be used as far as practicable in the formation of embankments, subgrade, shoulders, slopes, dikes, and backfill for structures, unless otherwise indicated on the plans or specifications herein or disposed of in a manner satisfactory to the Engineer. Excavated material shall not be wasted without permission.

203.03.02 GRADE TOLERANCE

A. Immediately prior to placing subsequent layers of material thereon, the grading layer shall conform to one of the following:

1. The subgrade shall not vary more than ~~one-tenth (~~0.10~~)~~ foot ~~(30 millimeters)~~ above or below the grade established by the Engineer or Contractor.

2. The final subgrade layer prior to application of the structural base shall not vary more than zero ~~(0.0)~~ foot ~~(0 millimeters)~~ above or ~~one-tenth (~~0.10~~)~~ foot ~~(30 millimeters)~~ below the grade.

203.03.03 UNSUITABLE MATERIAL

A. Unsuitable material shall be defined as soil or organic matter not suitable for foundation material regardless of moisture content. Material that is unsuitable for planned use, including material below the natural ground surface in embankment areas, shall be excavated and disposed of in a manner approved by the Engineer or as specified in the contract documents.

B. When unsuitable material is removed and disposed of, the resulting space shall be filled with material suitable for the planned use. Such suitable material shall be placed and compacted in layers as ~~hereinafter~~ specified below under embankment.

C. Disposal of material outside the right-of-way shall be in accordance with Subsection 107.14, "Disposal of Material Outside Project Right-of-Way."

203.03.04 BLASTING

A. Any material outside the authorized cross section on the backslopes which may be shattered or loosened because of blasting shall be removed by the Contractor at ~~his expense~~no additional cost to the Contracting Agency. Shattered or loosened material below the bottom limits of required excavation shall be uniformly distributed and compacted or otherwise disposed of in a manner satisfactory to the Engineer. The Contractor shall discontinue any method of blasting which leads to overshooting or is dangerous to the public or destructive to property or to natural features.

B. The use of coyote holes in blasting is prohibited. Attention is directed to Subsection 107.10, "Explosives."

203.03.05 ROCK CUTS

A. In excavating side hill rock cuts and rock cliffs, the Contractor shall exercise care and use precautionary methods so as not to break down, loosen, or otherwise damage supporting rock below the bottom limits of required excavation. In general, such cuts shall be worked from the top of lifts of such height that will not damage the bench of rock below the bottom limits of required excavation. The Contractor shall be responsible for the methods used and for any damage to the roadbed resulting from ~~his~~Contractor's operations.

B. The slope of all rock cuts shall be scaled and dressed to a safe, stable condition by removing all loose spalls and rock not firmly keyed to the rock slope. Overhanging rock shall be removed when, in the opinion of the Engineer, it may be a hazard to public use of the roadway.

C. In solid rock excavation, slopes shall be constructed to the approximate neat lines staked by the Engineer. No rock shall project or overhang more than ~~twelve (~~12~~)~~ inches ~~(300 millimeters)~~ from the true slope.

203.03.06 OVERBREAK

A. ~~:~~ Overbreak is that portion of material excavated, displaced or loosened outside and beyond the slopes or grade as staked or re-established, regardless of whether any such overbreak is due to blasting, the inherent character of any formation encountered, or to any other cause. Slides and slipouts as defined in Subsection ~~–~~ 203.03.11, "Slides and Slipouts," and that portion of rock subgrade as ~~hereinafter~~ set forth below~~,~~ shall not be considered overbreak. All side slope overbreak as so defined shall be removed by the Contractor and shall be disposed of in the same manner as provided for the surplus under the heading of "Surplus Material," but at ~~his expense~~no additional cost to the Contracting Agency and without any allowance for overhaul.

B. Rock removed to a maximum depth of ~~six (~~6~~)~~ inches ~~(150 millimeters)~~ below subgrade will be measured for payment as described in Subsection ~~–~~ 203.04.01C.2~~(b)~~, "Overbreak."

203.03.07 SLOPES

A. All excavation and embankment slopes, except in solid rock, shall be trimmed to the lines staked by the Engineer. The degree of smoothness shall be that normally obtained by hand shovel operations~~,~~ or blade grader operations.

203.03.08 WIDENING CUTS

A. If the Engineer directs the Contractor to excavate beyond the limits of the typical cross section originally proposed and within the limits of the right-of-way, the Contractor shall do so and compensation therefor~~e~~ will be as set forth in Subsection ~~–~~ 203.04.01C.3~~(c)~~, "Widening Cuts."

203.03.09 SURPLUS MATERIAL

A. Unless otherwise specified in the contract documents, surplus excavated material shall be used to widen embankments uniformly, or to flatten slopes, or at other locations, all in a manner satisfactory to the Engineer. No surplus material shall be disposed of above the grade of the adjacent roadbed nor shall the Contractor waste any material unless approved in writing by the Engineer.

B. If the quantity of surplus material is specified in the contract documents, such quantity shall be considered approximate only. The Contractor shall ~~satisfy himself~~verify that there is sufficient material available for the completion of the embankments within the areas involved before disposing of any indicated surplus material inside or outside the right-of-way. Any shortage of material caused by premature disposal of the indicated surplus material by the Contractor shall be replaced by ~~him~~the Contractor and no compensation will be allowed the Contractor for such replacement.

203.03.10 SELECTED MATERIAL

A. When specified in the contract documents, or when selected by the Engineer, suitable selected material encountered in excavating or widening the roadway prism or any other excavation within the ~~highway~~ right-of-way, or in the excavation or borrow, shall be used for finishing the top portion of the subgrade. The top portion of the subgrade ~~that is used for a pavement section structural number,~~ shall be ~~two (~~2~~)~~ feet ~~(.6 meters)~~ in depth, or as determined by the Engineer.

B. Selected material shall be defined as material~~, which~~ that is excavated~~,~~ from one or more of the above sources and is used for selective purposes.

C. When practical, selected material shall be hauled directly from excavation to its final position ~~on the roadbed~~ and compacted in place and such work shall be paid for at the contract unit price for the excavation item involved. Attention is directed to Subsection 104.05, "Rights In and Use of Materials Found on the Work."

D. When the transporting of selected material directly from excavation to its final position ~~on the roadway~~ is impractical, the selected material shall be left in place until it can be placed in final position and no additional compensation will be made because of the delayed excavation. If, however, the conditions are such that the undisturbed selected material will hamper ordinary grading operations or cause unnecessary movements of equipment, the Engineer may order, in writing, the removal of sufficient selected materials and the stockpiling thereof to enable practical hauling operations. If the excavation and stockpiling of selected material is specified in the contract documents or is ordered by the Engineer, the excavation ~~shall be from,~~ and ~~the~~ stockpiling ~~at~~ locations shall be designated by the Engineer. The selected material shall be removed from the stockpile and placed in final position ~~on the roadbed~~ when approved by the Engineer.

E. Measurement for payment of selected material ~~stockpiled, as above, provided~~ will be in accordance with Subsection 203.04.01C.4~~(d)~~, "Selected Material."

203.03.11 SLIDES AND SLIPOUTS

A. Material outside the planned roadway or ditch slopes ~~which~~that is unstable and constitutes potential slides in the opinion of the Engineer, material from slides ~~which~~that has come into the roadway or ditch, and material ~~which~~that has slipped out of new or old embankments shall be excavated and removed. The material shall be excavated to designated lines or slopes either by benching~~,~~ or in ~~such~~a manner~~, as~~ approved by the Engineer. Such material shall be used in the construction of the embankments or disposed of as approved by the Engineer.

B. The above provisions shall not be so construed as to relieve the Contractor from the duty of maintaining all slopes true and smooth. Erosion, regardless of amount or extent, caused by the action of the elements which results in damage to work or materials, shall in no case be considered a slide or slipout. Measurement for payment will be in accordance with Subsection 203.04.01~~(f)~~C.6, "Slides and Slipouts."

203.03.12 DRAINAGE

A. During construction of the roadway, the roadbed shall be maintained in such condition that it will be well drained at all times.

B. V-type ditches shall be formed to the cross section and dimensions on the plans by means of suitable equipment, which will deposit all loose material on the downhill side.

The ~~reason is that the~~ bottom of the finished ditches shall not be less than ~~two (~~2~~)~~ feet ~~six (~~6~~)~~ inches ~~(.8 meters)~~ below the crest of the loose material piled on the downhill side.

C. In going from cut-to-fill, the roadway ditches shall be so cut as to avoid damage to embankments by erosion.

D. The flat-bottom ditches indicated on the plans, or staked by the Engineer, shall be excavated to the required cross section and grade. Materials so obtained~~,~~ shall be used to construct roadway embankments or dikes or both, to form a continuous diversion channel as staked by the Engineer.

203.03.13 CHANNELS

A. To avoid destruction of natural growth during construction of ditches, channels, or dikes, travel of equipment shall be confined to the construction limits. Where ditches, channels, ~~or~~and dikes are nearly parallel to the roadway, turn-around shall not be located closer than ~~two hundred (~~200~~)~~ feet ~~(60 meters)~~ apart. Attention is directed to Subsection 107.12, "Protection and Restoration of Property and Landscape."

B. Fine grading of channel~~-~~ bottoms will not be required unless paving is specified.

203.03.14 BORROW

A. A possible source of borrow material may be indicated in the contract documents. If the Contractor desires to use borrow materials from sources other than those described in the contract documents, ~~he~~the Contractor shall, at ~~his expense~~no additional cost to the Contracting Agency, acquire the necessary right to take materials and pay all costs involved. All costs of exploring such alternate sources shall be borne by the Contractor. Use of material from these sources will not be permitted until approved in writing by the Engineer.

B. The Contractor shall, at the time of execution of the contract, execute an "Agreement" for all borrow deposits obtained under an "Option and Agreement for Sale of Materials" when said "Option" is contained in the Special Provisions. This agreement shall be executed whether the material is to be used or not.

C. In case designated borrow deposits fail to contain the necessary quantity of acceptable material, the Contractor shall immediately notify the Engineer in writing. The Engineer shall thereupon investigate, and if ~~his~~the Engineer's investigation shows that there is not sufficient quantity of acceptable material, ~~he~~the Engineer shall designate an alternate deposit ~~in~~from which to obtain the deficit.

D. In all borrow pits having undesirable material, including overburden, refuse, organic and deleterious substances, the material shall be removed and wasted or redistributed, in a manner satisfactory to the Engineer. All costs incurred~~,~~ therefor~~e,~~ shall be considered as incidental and subsidiary to the borrow material.

E. Borrow shall not be obtained until all other excavation items are complete to the extent necessary to determine the need for borrow.

F. The Contractor shall notify the Engineer ~~thirty (~~30~~)~~ days in advance of opening any borrow areas so that cross section elevations and measurements of the ground surface after stripping may be taken, and the borrow materials can be tested before being used. Sufficient time for testing of the borrow material shall be allowed.

G. Borrow deposits shall be excavated to regular lines as staked to permit accurate measurement. The dimensions of the borrow deposit will be designated and the

Contractor shall not excavate below the depth or outside limits given, except with prior approval. The depth of excavation throughout the area of the borrow pits shall be as uniform as practicable and the side slopes shall conform to the requirements of Section 626, "Final ~~Clean Up~~Cleanup." Unless otherwise permitted, borrow pits shall be excavated so that the~~y~~ pits will drain to the nearest natural outlet.

H. All materials~~, which~~that are not satisfactory for use for the purposes intended shall be rejected at the pit and disposed of in a manner satisfactory to the Engineer.

I. If the Contractor excavates more material than is required, the excess will not be measured for payment.

J. All work and materials required to build and maintain borrow haul roads and obliteration of haul roads in accordance with Section 626, "Final ~~Clean Up~~Cleanup" shall be considered subsidiary to the "borrow" item and no further compensation will be allowed.

203.03.15 FOUNDATION

A. When embankment is to be placed and compacted on hillsides, or when new embankment is to be compacted against existing embankments, or when embankment is to be built one half width at a time, the slopes that are steeper than ~~four-to-one (~~4:1~~)~~, when measured at right angles to the roadway, shall be continuously benched as the work is brought up in layers. Benching shall be of sufficient width to permit operations of placing and compacting equipment. Each horizontal cut shall begin at the intersection of the original ground and the vertical sides of the previous cuts. Material thus cut out shall be re~~-~~compacted along with the new embankment material at ~~the Contractor's expense~~no additional cost to the Contracting Agency, unless the width of excavation required by the Engineer exceeds ~~six (~~6~~)~~ feet ~~(1.8 meters)~~, in which case the excavated material in excess of ~~six (~~6~~)~~ feet ~~(1.8 meters)~~ will be measured and paid for as roadway excavation.

B. All foundations for embankment shall be cleared and grubbed in accordance with Section 201, "Clearing and Grubbing."

C. In designated areas, unsuitable material shall be removed and disposed of as prescribed in Subsection 203.03.03, "Unsuitable Material."

D. Where ~~twelve (~~12~~)~~ inches ~~(.3 meters)~~ or less of embankment is placed over existing bituminous surface, such surface shall be removed and incorporated in the embankment or otherwise disposed of as approved by the Engineer. Where more than ~~twelve (~~12~~)~~ inches ~~(.3 meters)~~ of embankment is placed over existing bituminous surface, such surface shall be left undisturbed. Measurement for removal of existing bituminous material will be ~~as prescribed in Subsection 203.04.10, "Measurement,"~~ measured and paid for as roadway excavation unless the contract documents specifically call~~ed~~ for payment under Section 202, "Removal of Structures and Obstructions."

203.03.16 EMBANKMENT MATERIALS

A. Embankments shall be constructed with suitable materials, excavated as prescribed and with any excess materials from other operations which are acceptable and suitable for use.

B. All materials used in embankment shall be free from objectionable material such as leaves, grass, roots, logs, stumps, brush, or other perishable material.

C. When there is a choice of material, the excavation shall be made so the best material will be placed on top of the embankment for at least ~~one (~~1~~)~~ foot ~~(.3 meters)~~ in depth. This

paragraph shall not be interpreted as to require the Contractor to stockpile and subsequently re-handle embankment materials except as provided in Subsection 203.03.10, "Selected Material."

D. Material shall not be placed in the embankment when either the material, foundation, or the embankment on which it would be placed is frozen.

E. Where embankments are to be made of material from rock cuts or other material, whichthat is unsuitable for finishing the roadbed, the upper six (6) inches (.15 meters) of the roadbed, shall be formed of approved material.

203.03.17 PLACING EMBANKMENT

A. For embankment or backfill deposited against structures, attention is directed to Subsection 207.03.02, "Placing and Compacting at Abutments, Piers, Wingwalls, and Retaining Walls."

B. Where structure abutments are placed on embankment, the embankment shall be constructed to subgrade elevation prior to excavating for the construction of the abutment. Where the abutment is supported on piles, the embankment shall be constructed to the elevation of the bottom of the footing.

C. Where a structure is to be covered by a rockfill, it shall be covered with not less than two (2) feet (.60 meters) of satisfactory soil or granular materials before the rock embankment is placed over the structure.

D. Embankments shall, except as hereinafter specified herein, be constructed in layers. The construction of embankments shall begin at the lowest point of the fill below the grade or the bottom of ravines. Individual layers shall be spread evenly to uniform thickness throughout and parallel with the finished grade for the full width of the embankment, unless otherwise permitted. The thickness of the layer shall be as necessary to secure the required compaction with twelve (12) inch (.3 meters) maximum thickness after compaction. Excepted provisions are hereinafter outlined for placing in marsh and placement of rock are outlined below. Hauling equipment shall be routed to obtain uniform compaction and channelization of haul routes and rutting of the fill shall be avoided.

E. When embankments are constructed across wet or swampy ground whichthat will not support the weight of heavy hauling and spreading equipment, the Contractor will be expected to choose such methods of embankment construction and to use such hauling and spreading equipment as will least disturb the soft foundation. When soft foundations are encountered, and when approved by the Engineer, the lower part of the fill may be constructed by dumping and spreading successive vehicle loads. This mustshall be in a uniformly distributed layer of a thickness not greater than that necessary to support the vehicle while placing subsequent layers, after which the remainder of the embankment shall be constructed in layers and compacted as specified.

F. It is not the policy of the Contracting Agency to allow an increase in the planned depth of embankment material over soft, wet, or swampy ground for the sole purpose of providing support for heavy hauling and spreading equipment, unless the Contractor proves to the satisfaction of the Engineer that the planned depth is inadequate to support light hauling vehicles. If it proves necessary for the Contractor to use smaller hauling vehicles or different methods of embankment construction than hethe Contractor had originally contemplated in order to comply with the foregoing, such shall not be the basis for a claim for extra compensation against the Contracting Agency. The unit contract price for the

various pay items involved shall be full compensation for all labor, materials, and equipment necessary to perform the work as outlined herein.

G. Embankment which, in the opinion of the Engineer, contains enough rock larger than ~~four (4)~~ inches ~~(.10 meters)~~ to make it impractical to place and compact in ~~twelve (1)~~ inch ~~(.3 meters)~~ lifts shall be considered as "Rock Embankment." The materials shall be spread in a uniform horizontal layer over the full width of the embankment. The layer thickness shall not exceed ~~one and one-third (1-1/3)~~ times the vertical dimension of maximum size material larger than ~~eight (8)~~ inches ~~(.20 meters)~~. The largest size rock allowed in the embankment will be ~~three (3)~~ feet ~~(1 meter)~~ measured in vertical direction and rocks larger than this shall be broken up before being placed in the embankment. Rock to be wasted may exceed ~~three (3)~~ feet ~~(1 meter)~~ and be disposed of in an inconspicuous manner approved by the Engineer.

H. In rock fills where end dumping is employed, direct end dumping upon the previously constructed layer of embankment will not be permitted. Rock shall be dumped on the layer of embankment being constructed and dozed ahead into place. Care shall be exercised to work the fines and smaller rock into the spaces between the larger rock. Compaction will be required as provided in Subsection ~~–~~ 203.03.19, "Compaction, Rock Embankment."

I. To the extent of project requirements for embankments, all rock from excavation shall be used for embankment. The Contractor shall plan ~~his~~the grading operation to use rock~~, which~~that may be encountered in excavation in accordance with the following provisions:

J. Rock, in general, shall be placed to form the base of embankment for the full width of the cross section under the following condition*:*

1. on the side slope or slopes of a new embankment being placed; or
2. on the side slope or slopes of an embankment already in place requiring widening; or where excess rock may be wasted; or
3. on the side slopes and top of rolled embankment made of embankment materials other than rock.

K. The Contractor shall not place large rock in embankments where piles will be driven. The Contractor shall be responsible for penetrating the embankment with specified piles.

L. When rock and other embankment materials are excavated at approximately the same time, the rock shall be distributed throughout the fill and not nested in one location.

M. When there is insufficient material other than rock in the excavation to permit properly compacted layers, the rock shall be placed for the full cross section width with the larger rocks well distributed and the void spaces filled with the smaller rocks and fragments.

N. When shown on the plans or considered necessary by the Engineer, embankments shall be built to such elevation above required grade to allow for settlement, or sufficient surcharge shall be placed above the required elevation of earth grade over deposits of unstable material to secure displacement or settlement. Surcharge shall be removed only after the fill has reached stability or the required settlement time has been reached.

203.03.18 COMPACTION, DIRT EMBANKMENT

A. Optimum moisture content and material density of the various soils will be determined by ~~the~~a Geotechnical Engineer and acceptable ranges for optimum moisture and material density shall be approved by the Engineer. At the time of compaction, the moisture

content of the various soils shall be within the ~~geotechnical engineering report~~approved ranges.

B. The compacted subgrade shall be maintained at a minimum of optimum moisture content until placement of an aggregate base course or cement treated base.

C. When necessary, each layer before being compacted~~,~~ shall~~,~~ be processed as required in order to bring its moisture content within the prescribed limits. The material shall be wetted by the application of water or dried as necessary and either process may be carried out either on the embankment or at the source of the material or otherwise as approved by the Engineer. Full compensation of any work involved in wetting or drying embankment material to obtain the required moisture content shall be considered as included in the contract unit price bid for excavating or furnishing the material and no additional compensation will be allowed therefor~~e~~.

D. Hauling and leveling equipment shall be routed over each layer of the fill in such a manner as to uniformly distribute the compaction afforded by the wheel load. In addition to hauling and leveling equipment, the Contractor shall provide compaction equipment that is specifically designed and manufactured for compacting dirt embankments. ~~Said~~The compaction equipment shall work continuously with the grading equipment.

E. The top ~~eight (~~8~~)~~ inches ~~(20 meters)~~ of the base of cuts and natural ground having less than ~~five (~~5~~)~~ feet ~~(1.5 meters)~~ of embankment, measured from the sub-grade, and all embankment material, shall be compacted ~~as recommended by the geotechnical engineer report or~~to not less than ~~ninety (~~90~~)~~ percent relative compaction unless otherwise specified. When natural ground material is encountered that cannot be compacted to the required density, compaction requirements shall be determined by the Engineer.

F. All selected borrow and structure backfill placed within the limits of embankment shown on the plans for approaches to bridges shall be compacted ~~as recommended by the geotechnical engineer report or~~to not less than ~~ninety-five (~~95~~)~~ percent relative compaction unless otherwise specified.

G. It is to be expected that a loss of density in the upper portion of earth sub-grade may occur due to the elements, or for lapse of time, or for other reasons. Recompaction to the specified density will be required prior to placement of any subsequent course and no additional compensation will be allowed.

203.03.19 COMPACTION, ROCK EMBANKMENT

A. Field density tests will not be required on rock embankments. In lieu thereof, the required compaction shall be tested by proof rolling. ~~If a geotechnical report is not available, use the following procedure. C~~Unless otherwise specified, compaction shall be attained and tested by using construction methods and equipment as follows:

1. Methods:

   a. The material for the embankment shall be deposited, spread, and leveled the full width of the embankment, and the layer of thickness may be ~~one and one-third (~~1-1/3~~)~~ times the vertical dimension of maximum size material. The maximum size rock shall not exceed ~~three (~~3~~)~~ feet ~~(1 meter~~.

   b. Hauling and leveling equipment shall be routed and distributed over each layer of the fill in such a manner as to make use of the compaction afforded thereby. Rollers, vibrators, or compactors shall compact the embankment full width with a minimum of ~~three (~~3~~)~~ complete passes for each layer of

embankment. The compacting equipment shall not exceed a speed of ~~five (~~5~~)~~ miles ~~(8 kilometers)~~ per hour and shall work continuously with the grading equipment.

c. Rolling shall be done in a longitudinal direction along the embankment and shall begin at the outer edges and progress toward the center. The travel paths of traffic and construction equipment shall be kept dispersed over the entire width of the embankment to aid in obtaining uniform compaction. Weights of equipment used in making embankments over soil having an excessive moisture content may be limited, if, in the judgment of the Engineer, such limitations are necessary in order to maintain the fill in a satisfactory condition.

d. Water shall be applied to the embankment in the amount necessary to obtain the required compaction.

2. Equipment:

a. Compaction equipment shall be adequately designed to obtain compaction requirements without adverse shoving, rutting, displacement, or loosening and shall meet the requirements ~~hereinafter~~ specified herein. Rollers shall have displayed thereon in permanent legible characters, the manufacturer's guaranteed net operating weights as distributed on each axle.

b. The proof roller shall be a pneumatic-tired roller or pneumatic-tired compactor weighing not less than ~~fifty (~~50~~)~~ tons ~~(45. metric tons)~~, and capable of applying to the ground loads of not less than ~~twenty-five thousand (~~25,000~~)~~ pounds ~~(11,300 kilograms)~~ per wheel. All tires shall be of equal size and diameter and shall be capable of operating at an air pressure of at least ~~ninety (~~90~~)~~ psi~~pounds per square inch (620 kPa)~~. The~~y~~ tires shall be kept uniformly inflated so that the difference in pressure in any ~~two (~~2~~)~~ tires shall never exceed ~~five (~~5~~)~~ psi~~pounds per square inch~~ ~~(0.35 kPa)~~ and means shall be provided by the Contractor for checking the tire pressure on the job at any time.

3. Tests:

a. Subsequent layers shall not be placed until the previous layer of the embankment is compacted to the degree that no further appreciable deflection is evidenced under the action of proof rolling equipment, as determined by the Contractor with approval of the Engineer.

b. Rolling and proof rolling may be deleted on any layer or portion thereof when, in the judgment of the Engineer, accomplishment is physically impractical.

c. Payment for rolling and proof rolling or for the correction of any sub~~-~~grade weakness or deficiencies disclosed by the proof rolling operation shall be considered subsidiary to the price bid for the "Excavation" item.

4. The Contractor shall submit an inspection report to the ~~Agency~~ Engineer that has been reviewed and stamped by a Nevada professional engineer.

203.03.20 MAINTENANCE

A. Embankment material ~~which~~that may be lost or displaced as a result of natural settlement of the ground or foundation upon which the embankment is constructed shall be replaced by the Contractor with acceptable material from excavation or borrow, etc. The quantity of

material required will be paid for at the regular contract price for the type of material used~~, also overhaul, applicable and no additional compensation will be allowed~~.

B. The Contractor shall, at ~~his expense~~no additional cost to the Contracting Agency, remove and replace with acceptable material any embankment or portion thereof which has been constructed with unapproved material as well as remove and replace portions of the embankment which may become unstable or displaced as the result of carelessness or negligence on ~~his~~the Contractor's part.

203.03.21 SUBGRADE TOLERANCE

A. Subgrade shall comply with Subsection 203.03.02, “Grade Tolerance.”

~~04~~METHOD OF MEASUREMENT

203.04.01 MEASUREMENT

A. Unless otherwise specified, excavation will be measured on a volume basis by cross sectioning the area to be excavated and computing neat lines for an end area. The average end area method will be used with no allowance made for curvature. If for any reason it is impossible or impractical to measure quantities by average end areas, the Engineer will compute the quantities by a method which, in ~~his~~the Engineer's opinion, is best suited to obtain an accurate determination.

B. The quantity of excavation to be measured for payment shall be the number of cubic yards ~~(cubic meters)~~ excavated and placed as shown on the plans and as directed by the Engineer. The estimated quantities shown on the plans, plus or minus authorized changes will be the quantity used for payment. Additional measurement of excavation quantities will not be made for methods or equipment chosen by the Contractor for ~~his~~the Contractor's convenience. The Contracting Agency or the Contractor may request a final measurement in which case final cross sections will be taken. When final cross sections are taken the determination of quantities derived there~~-~~from will be the quantities used for payment. Furthermore, when the Contractor requests final measurement and the quantities thus determined are less than the planned quantities plus authorized changes, the Contractor shall reimburse the Contracting Agency for the Agency's expenses incurred by such final measurement and calculation.

C. When changes are made during construction such as widening cuts, changing grades, disposing of unsuitable material, stockpiling selected material, and other changes resulting in increases or decreases in quantities, then additional measurements for payment will be made by the Engineer as ~~hereinafter~~ outlined below:

1. **Unsuitable Material:**

   a. When the removal and disposal of unsuitable material is shown in the contract documents, such material will be measured for payment as excavation for the related item. Removal and disposal of unsuitable material~~,~~ not shown on the plans~~,~~ will be measured and paid for as "Roadway Excavation." However, if removal and disposal of unsuitable material not shown on the plans required special equipment or unusual operations, it may be paid for as extra work according to the provisions of Subsection~~-~~ 104.03, "Extra Work."

   b. No measurement will be made of suitable material temporarily removed and replaced to facilitate compaction of material.

2. **Overbreak:**

a. All sideslope overbreaks as defined in Subsection 203.03.06, "Overbreak," shall not be paid for. Rock removed to a maximum depth of six (6) inches (150 millimeters) below subgrade will be measured for payment provided the rock has been removed sufficiently to permit accurate cross sectioning. Replacement to this depth shall be with material designated on the plans and approved by the Engineer and will be measured and paid for at the contract unit price for the material used.

b. Rock loosened or removed in excess of six (6) inches (150 millimeters) below subgrade will not be measured nor paid for. When ordered by the Engineer, the loosened material will be removed and the resultant space refilled with approved material at the expense of the Contractor.

3. **Widening Cuts:** If the Engineer directs the Contractor to excavate beyond the limits of the typical cross section and before the excavation is substantially completed, the material shall be classified as "Roadway Excavation" and shall be paid for at the contract bid price. However, if widening cuts requires special equipment, or unusual and extra expense, it may be paid for as extra work according to the provisions of Subsection 104.03, "Extra Work."

4. **Selected Material:** Selected material stockpiled as provided in Subsection 203.03.10, "Selected Material" will be measured for payment as roadway excavation both in its original position and also from the stockpile. Measurement of the material taken from stockpile will be made of the volume actually removed.

5. **Surplus Material:** Surplus excavated material will be measured for payment as roadway excavation and no further compensation will be allowed by virtue of the method of disposing, placing, or widening embankments caused from such surplus material.

6. **Slides and Slipouts:** In the event of slides and slipouts, the Engineer and Contractor shall negotiate in each case and decide the relative difficulty of performing the work, and payment will be made either as "Roadway Excavation" or as "Extra Work" as provided in Subsection 104.03, "Extra Work."

D. Where slopes have been previously completed by the Contractor, the cost of re-sloping required in areas where unstable material is removed will be paid for as extra work as provided in Subsection 104.03, "Extra Work."

E. The cost of pioneering work necessary to make slide or slipout areas accessible to normal excavation equipment and the cost of necessary clearing and grubbing will be paid for as extra work as provided in Subsection 104.03, "Extra Work."

F. Only those quantities of slide or slipout material, which that are authorized and actually removed will be measured for payment.

G. Excavation in excess of the staked or authorized cross section will not be measured for payment, except as outlined above.

H. Material used for surcharge, whether shown on the plans or called for by the Engineer, will be measured for payment as roadway excavation both in its original position and when removed from the surcharge position.

I. Earthwork quantities within the limits of "Slope Rounding" will not be measured for payment.

J. V-type ditches will be measured parallel to the ground and each ~~one hundred (~~100~~)~~ linear feet ~~(30.48 meters)~~ shall constitute a unit of measure. The volume of excavation for such ditches will not be measured for payment.

K. The quantity of “Selected Borrow” or “Selected Borrow Excavation” to be measured for payment will be the number of cubic yards or tons ~~(cubic meters or metric tons)~~ measured as set forth in the Special Provisions.

L. All measurements will be made in accordance with Subsection 109.01, "Measurement of Quantities."

~~05~~BASIS OF PAYMENT

203.05.01 PAYMENT

A. The accepted quantities of excavation measured as specified in Subsection 203.04.01, "Measurement," will be paid for at the contract unit price bid for each of the pay items listed in the bid schedule. Compensation for roadway excavation shall include excavating, loading, hauling, depositing, spreading, compacting, and maintaining the material complete and in place which includes all labor, tools, equipment for removal of existing asphalt paving, saw cutting of existing paving, scarifying the existing subgrade or sub-base, all miscellaneous grading of shoulders, ditches, and transitions, and incidentals as necessary, as shown on the drawings, as specified herein, and as required by the Engineer.

B. All costs for disposal of surplus materials is considered to be included in the contract price paid per cubic yard of roadway excavation and no additional payment will be made therefor~~e~~.

C. The accepted quantities of selected borrow or selected borrow excavation will be paid for at the contract unit price bid per cubic yard or ton ~~(cubic meter or metric ton)~~ for "Selected Borrow" or "Selected Borrow Excavation," which ~~price~~ shall be full compensation for furnishing all materials, loading, hauling, depositing, spreading, watering, compacting, and maintaining the material complete and in place.

D. The contract unit price bid per cubic yard for roadway excavation, borrow excavation, and channel excavation shall be considered as including payment for all haul.

E. All payments will be made in accordance with Subsection 109.02, "Scope of Payment."

F. Payment will be made under:

PAY ITEM	PAY UNIT
Roadway Excavation	Cubic Yard ~~(Cubic Meter)~~
Drainage Excavation	Cubic Yard ~~(Cubic Meter)~~
Channel Excavation	Cubic Yard ~~(Cubic Meter)~~
Borrow Excavation	Cubic Yard ~~(Cubic Meter)~~
V-type Ditches	Stations ~~(30. Meters)~~
Selected Borrow	Cubic Yard, ~~or~~ Ton ~~(Cubic Meter-Metric Ton)~~
Selected Borrow Excavation	Cubic Yard, ~~or~~ Ton ~~(Cubic Meter-Metric Ton)~~

TESTING

203.05.02 TESTING

SECTION	DESCRIPTION	TEST	REFERENCE SPECIFICATION AND/OR TEST PROCEDURE	RECOMMENDED FREQUENCY
203.02.01	Roadway Excavation (Subgrade)	Field Density	AASHTO T 310	1/5000 SF
203.02.02	Drainage Excavation (Subgrade)	Field Density	AASHTO T 310	1/5000 SF
203.02.03	Channel Excavation (Subgrade)	Field Density	AASHTO T 310	1/5000 SF
203.02.04	Borrow	Sieve Analysis	AASHTO T 11 & T 27	1/Type
		Plasticity Index	AASHTO T 89 & T 90	1/Type[1]
203.02.05	Selected Borrow	R-Value	AASHTO T 190	1/Type
		Proctor	AASHTO T 180	1/Project or Change
203.03.01	Roadway At Grade or Fill (Subgrade)	Field Density	AASHTO T 310	Residential = 1/5000 SF/Lift/Day
				Arterial and Collector = 1/5000 SF/Lift/Day
203.03.10	Selected Material	Sieve Analysis	AASHTO T 11 & T 27	1/1000 LF
		Plasticity Index	AASHTO T 89 & T 90	1/1000 LF
		R-Value	AASHTO T 190	1/Type
		Field Density	AASHTO T 310	1/5000 SF/Lift/Day
		Proctor	AASHTO T 180	1/Project or Change
203.03.15	Foundation[2] (Subgrade)	Field Density	AASHTO T 310	1/500 SF/Lift/Day
		Proctor	AASHTO T 180	1/Project or Change
203.03.18	Embankment	Field Density Fill	AASHTO T 310	1/5000 SF/Lift/Day
		Field Density Native Below Embankment Fill Operations	AASHTO T 310	1/5000 SF/Lift/Day
		Proctor	AASHTO T 180	1/Project or Change
203.03.19	Rock Embankment	Visual	Issue Inspection Report	Full Time

[1] A ~~M~~maximum testable lift is defined as a ~~twelve (~~12~~-)~~ inch ~~(30 centimeter)~~ layer of compacted material.
[2] This is in reference to benched slope construction of embankment only.

SECTION 204

ROUNDED AND TRANSITION SLOPES

~~01~~DESCRIPTION

204.01.01 GENERAL

A. This work shall consist of rounding and shaping slopes in accordance with the plans and where designated by the Engineer.

~~02~~MATERIALS

204.02.01 BLANK

~~03~~CONSTRUCTION

204.03.01 GENERAL

A. The top of cut slopes shall be rounded by excavating to blend the cut slopes with the adjacent natural terrain. At the intersections of cuts and fills, slopes shall be adjusted and warped to blend into each other or into the natural ground surface without noticeable break.

B. Slopes will be staked for flattening and rounding in places where the material is other than solid rock. Rock formations such as shales, decomposed sandstone, and granite that can be readily excavated by means of hand tools, shall have the slopes flattened and rounded the same as the earth slopes. A layer of earth overlying a rock cut shall be rounded above the rock the same as earth slopes. Where the depth of cut is insufficient to provide the full rounding required, the distance for rounding shall be proportionately adjusted.

C. Slopes rounding and warping shall also apply to all drainage ditches when such rounding will improve the appearance of the roadside.

D. Whenever the treatment of the slopes may destroy or injure standing timber, trees, or other vegetation which should be preserved, adjustments in slope grading will be made. These adjustments shall be effected by a gradual transition from the theoretical grading section required.

E. The degree of smoothness required in rounding and warping slopes shall be as specified in Subsection ~~.~~ 203.03.0~~6~~7, “Slopes.”~~.~~

~~04~~METHOD OF MEASUREMENT

204.04.01 MEASUREMENT

A. The quantity of rounded cut slopes to be paid for shall be measured in linear feet of slopes, treated as specified, measured along the roadway ditch each side of the roadway centerline. The quantity of rounded embankment slopes to be paid for shall be measured in linear feet ~~(meters)~~, treated as specified, measured along the centerline of the embankment to be rounded, and each side shall be considered separately. In all cases, each ~~one hundred (~~100~~)~~ feet ~~(30 meters)~~ shall constitute the unit of one station. Earthwork quantities with in the limits of “Slope Rounding” will not be measured for payment.

B. All measurements will be made in accordance with Subsection 109.01, “Measurements of Quantities.”

05BASIS OF PAYMENT

204.05.01 PAYMENT

A. The accepted quantity of slope rounding measured as specified in the Subsection 204.04.01. “Measurement,” will be paid for at the contract unit price bid per station of the completed work.

B. All payments will be made in accordance with Subsection 109.02, "Scope of Payment."

C. Payment will be made under:

PAY ITEM	**PAY UNIT**
Slope Rounding	Stations (30 Meters)

SECTION 205

BLANK

This section reserved for future use.

~~**SECTION 205 — BLANK**~~

SECTION 206

STRUCTURE EXCAVATION

~~01~~DESCRIPTION

206.01.01 GENERAL

A. This work shall consist of the removal of all material of whatever nature encountered in the construction of foundations for bridges, retaining walls, headwalls for culverts and other structures; the excavation of trenches for pipe culverts, box culverts, cut-off walls for slope paving and concrete aprons, footings for riprap and other excavation specifically designated on the plans, in these specifications or in the Special Provisions as structure excavation, which shall include the work of disposing of surplus material and cleaning up the sites. Structure excavation shall include dewatering and the furnishing of all equipment and the construction or installation of all cofferdams, cribs, and other facilities, which may be necessary to perform the excavations and the subsequent removal of such facilities except where they are required or permitted by the plans or specifications to remain in place. It shall also include all the necessary clearing and grubbing within the proposed structure area and removing old structures or parts thereof as required if the proposal does not include separate bid items for such work.

B. For separate requirements pertaining to the excavation involved in the installation of pipe culverts and underground piping, attention is directed to those sections of these specifications governing such work.

206.01.02 CLASSIFICATION

A. Classification of structure excavation will not be made on the basis of materials or conditions encountered. Classification of excavation, if made, will be on the basis of the material removed between certain elevations, and such classification as shown on the plans or set forth in the Special Provisions shall not be changed regardless of the material encountered.

~~**206.01.03**REFERENCE CODES AND STANDARDS:~~

~~a) Uniform Standard Specifications for Public Works' Construction Off-site Improvements, Clark County Area, Nevada that will henceforth be referred to as "USS"~~

~~b) Contract Special Provisions and Drawings~~

~~c) NRS 338.176, NAC 625.550~~

~~d) Most current ASTM, AASHTO, or NDOT test and inspection procedures~~

~~e) Related Interagency Quality Assurance Committee (IQAC) procedures at: www.accessclarkcounty.com/depts/public_works/Pages/iqac.aspx~~

~~02~~MATERIALS

206.02.01 BLANK

~~03~~CONSTRUCTION

206.03.01 GENERAL

A. The Contractor shall notify the Engineer in sufficient time in advance of the beginning of excavation for structures so that elevations and measurements may be taken of the existing ground before it is disturbed and of existing substructure units within the limits of excavation for structures before they are removed. Any material excavated or removed before these measurements have been taken will not be paid for.

B. The excavated area shall conform to the outlines of the footings, as shown on the plans, and shall be of sufficient size to permit placing of the full width and length of the footings shown. The elevation of the bottoms of footings as shown on the plans shall be considered as approximate~~ly~~ only, and the Engineer may order, in writing, such changes in dimensions or elevation of footings as may be necessary to secure a satisfactory foundation.

C. Unless otherwise permitted by the Engineer, foundations shall be compacted to not less than ~~ninety (~~90~~)~~ percent relative compaction for culvert pipe and not less than ~~ninety-five (~~95~~)~~ percent relative compaction for structures. For fine-grained soils, which are classified by having ~~fifty (~~50~~)~~ percent or more passing the #No. 200 sieve, the relative compaction may not be less than ~~ninety (~~90~~)~~ percent for structures if approved by the ~~entity~~ Engineer.

D. All rock or other hard foundation material shall be freed from all loose material, cleaned and cut to a firm surface, either level, stepped or serrated, as may be permitted by the Engineer. All seams and crevices shall be cleaned out and filled with concrete mortar or grout.

E. Where masonry is to rest on material other than rock or boulders, special care ~~must~~shall be given not to destroy it~~'~~s bearing value.

F. Should the Contractor remove structure excavation below grade, the Contractor shall backfill to the required elevation at ~~his own expense~~no additional cost to the Contracting Agency with backfill in a manner satisfactory to the Engineer.

G. Wet pits shall be dewatered for inspection and for construction of foundations unless otherwise provided.

H. Excavated material, which is suitable for backfilling, shall be so utilized or used in embankments, in a manner satisfactory to the Engineer. Surplus or unsuitable material shall be disposed of to cause no obstruction to flow of streams~~;~~ or otherwise impair the efficiency or appearance of the structure. It shall be disposed of in such a manner as to prevent damage to property or the creation of unsightly conditions, and shall not be placed where it will interfere with the operation of drains or impair the roadway ditches, etc.

I. After each excavation is completed, the Contractor shall notify the Engineer, and no masonry shall be placed until the Engineer has approved the depth of excavation and the character of the foundation material.

206.03.02 SAFETY REQUIREMENTS AND REGULATIONS

A. The Contractor shall follow OSHA safety regulations (29 CFR, Part 1926, Subpart P, Excavations) for sloping the sides of excavations, using shoring and bracing, and for using other safety features. When the sides of excavations are sloped for safety considerations, the Contractor shall provide, for informational purposes, one copy of the design that demonstrates conformity with OSHA regulations to the Engineer. Where support systems, shield systems, or other protective systems are to be used, the Contractor shall be responsible for their design and shall submit design calculations along with detailed drawings that demonstrate conformity with OSHA regulations to the Engineer. These calculations and detailed drawings shall be stamped and signed by a professional engineer licensed to practice in the state of Nevada. The design calculations and detailed drawings are considered working drawings and shall be submitted in accordance with Subsection 105.02, “Plans and Working Drawings.”

~~04~~METHOD OF MEASUREMENT

206.04.01 BLANK

~~05~~BASIS OF PAYMENT

206.05.01 PAYMENT

A. Unless otherwise provided in the Special Provisions ~~or Proposal~~, no payment will be made for structure excavation or backfill as such. The cost thereof under normal circumstances being considered as included in the price bid for the construction or installation of the items to which such excavation or backfill is incidental or appurtenant. Payment for such excavation or backfill will be made only when the Special Provisions ~~or Proposal~~ so provides.

SECTION 207

STRUCTURE BACKFILL

~~01~~DESCRIPTION

207.01.01 GENERAL

A. This work shall consist of placing and compacting, to the lines designated on the plans or as established by the Engineer, backfill material in excavations for bridges, retaining walls, headwalls for culverts, and other structures; placing and compacting backfill material for box culverts and other non-pipe culverts; and other backfill specifically designated in the contract documents as structure backfill. This item does not include backfilling pipes within a trench or minor miscellaneous structure excavations outside the limits of the roadway.

~~**207.01.02**REFERENCE CODES AND STANDARDS:~~

~~1.Uniform Standard Specifications for Public Works' Construction Off-site Improvements, Clark County Area, Nevada that will henceforth be referred to as "USS" Specifications and Drawings~~

~~2.Contract Special Provisions and Drawings~~

~~3.NRS 338.176, NAC 625.550~~

~~4.Most current ASTM, AASHTO, or NDOT test & inspection procedures~~

~~5.Related Interagency Quality Assurance Committee (IQAC) procedures at:~~

~~www.accessclarkcounty.com/depts/public_works/Pages/iqac.aspx~~

~~02~~MATERIALS

207.02.01 SELECTED BACKFILL

A. Selected backfill shall be of a quality acceptable to the Engineer and shall consist of suitable material from the excavation complying to Table 1. It shall be free from sod, frozen earth, organic materials, rubbish, or debris. If the material does not comply with Table 1, it may be used only if ~~recommended by the geotechnical engineer report and~~ approved by the ~~Agency~~ Engineer.

Table 1 – Select Backfill Gradation

Sieve Sizes	Percentage of Weight Passing
6~~"~~ inch	100
3~~"~~ inch	80-100
No. 4	35-100

Table 2 – Select Backfill Maximum Plastic Index Requirement

Percentage by Weight Passing No. 200 Sieve	Plasticity Index Maximum
10-10.0	15
10.1-20.0	12

Table 2 – Select Backfill Maximum Plastic Index Requirement

Percentage by Weight Passing No. 200 Sieve	Plasticity Index Maximum
20.1-50.0	10
50.1-80.0	8
80.1-100.0	6

B. When the completed select backfill test results from the sample indicate a Plasticity Index of ~~twelve (~~12~~)~~ or greater, a swell potential test may be required. Contact the Contracting A~~a~~gency for further procedure requirements or comply with the contract ~~s~~Special ~~p~~Provisions.

C. The liquid limit of the material shall not exceed ~~fifty (~~50~~)~~ percent maximum.

D. Stones or lumps exceeding ~~three (~~3~~)~~ inches ~~(75 millimeters)~~ shall not be used within the zones ~~twelve (~~12~~)~~ inches ~~(300 millimeters)~~ or less from the structure, ~~twelve (~~12~~)~~ inches ~~(300 millimeters)~~ or less from the finish subgrade in unpaved areas, or ~~sixteen (~~16~~)~~ inches ~~(400 millimeters)~~ or less below the ~~pavement~~finish subgrade in paved areas.

E. Acceptable material from excavation "Selected Backfill" may be used for structure backfilling unless "Granular Backfill" is specified.

207.02.02 GRANULAR BACKFILL

A. Granular backfill shall consist of natural sand or a mixture of sand with gravel. Broken Portland cement concrete and bituminous type pavement will be permitted, subject to the gradation limits specified herein. The granular backfill material shall have a sufficient amount of fine material to fill the voids between the coarser aggregate.

B. In addition, the material shall conform to the following requirements:

Table 3 – Granular Gradation

Sieve Sizes	Percentage of Weight Passing
3~~"~~ inch	100
No. 4	35-100
No. 16	25-100
No. 200	5-15

C. The plasticity index of the material shall be as specified in Subsection ~~-~~ 704.~~02.03~~03.01, "Plastic Limits."

D. The total available water soluble sulfate content of the material shall not exceed 0.3 percent by dry soil weight.

~~03~~CONSTRUCTION

207.03.01 GENERAL

A. Compaction of backfill or embankment around all structures shall be ~~as per~~ in accordance with the requirements of AASHTO LFRD Bridge Construction Specifications with exceptions as described in this section. The compaction shall be performed with mechanical tamping units and the material shall be placed in layers of thickness

compatible with the characteristics of the backfill and the type of equipment being used subject to approval by the Engineer.

B. Unless otherwise specified or approved by the Engineer, ~~T~~the compaction requirement shall be ~~as stated by the geotechnical engineer and approved by the Agency Engineer or~~ a minimum of ~~ninety (~~90~~)~~ percent.

C. Mechanically compacted backfill shall be placed in layers of thickness compatible with the characteristics of the backfill and the type of equipment being used. Backfill material shall be placed in uniform horizontal layers with a maximum compaction depth of ~~twelve (~~12~~)~~ inches ~~(300 millimeters)~~ and a maximum loose lift of ~~sixteen (~~16~~)~~ inches ~~(400 millimeters)~~ and shall be brought up uniformly on all sides of the structure or improvement.

D. Backfill material to be used around buried structures where water is present or anticipated to be present shall be carefully selected so that it will protect the surrounding soil from infiltrating into the backfill as determined by the Engineer. This select material shall serve as a filter material. If the drain material is to remove an appreciable quantity of water, graded filter drains using separate fine-grained layers for filters and coarse-grained layers to conduct the water may be required. As an alternate to using a filter material, a filter fabric may be placed between the backfill material and surrounding soil.

E. Material resulting from structure excavation and not used, shall be deposited in roadway embankments in accordance with the requirements specified elsewhere or otherwise disposed of in a manner approved by the Engineer and no additional compensation will be allowed for such work.

F. Structure backfill shall not be placed until the structure or facilities have been inspected by the Engineer and approved for backfilling. Backfill material shall not be deposited against the back of concrete abutments, concrete retaining walls, or the outside walls of concrete box culverts until the concrete has reached ~~eighty (~~80~~)~~ percent ~~on~~of the required compressive strength and approved by the Engineer.

G. Backfill operations placed against concrete walls that will support any deck shall not be performed~~,~~ until after the deck has been placed.

H. Where backfill is placed against waterproofed surfaces, care shall be taken that no damage is done to the waterproofing material.

207.03.02 PLACING AND COMPACTING AT ABUTMENTS, PIERS, WINGWALLS AND RETAINING WALLS

A. With the approval of the Engineer, all spaces excavated and not occupied by abutments, piers, or other permanent work shall be refilled with earth up to the surface of the surrounding ground or to the limits designated on the plans or as described herein. All backfill shall be thoroughly compacted in accordance with the provisions set forth in Subsection~~.~~ 207.03.01, "General."

B. Where backfill is to be placed on one side of an abutment, wing~~-~~wall, pier, or headwall, care shall be exercised to prevent ~~placing~~displacement of line, or batter, or both.

C. Existing slopes~~,~~ ~~which~~that are shaped to cause wedge action in the backfill~~,~~ shall be step-cut or benched before backfilling.

207.03.03 PLACING AND COMPACTING AT CULVERTS

A. After the bedding has been prepared and the culverts installed or constructed as required by the pertinent specifications, "Selected Backfill" or "Granular Backfill" shall be placed

along both sides of the culvert equally in uniform layers such that the elevation of the top of the backfill on either side of the culvert does not exceed the elevation of the top of the backfill on the other side of the culvert by more than ~~six (~~6~~)~~ inches ~~(150 millimeters)~~. The thickness of each layer shall be compatible with the characteristics of the backfill and the type of equipment being used, but shall not exceed ~~twelve (~~12~~)~~ inches ~~(300 millimeters)~~ in depth after compaction nor a loose lift of ~~sixteen (~~16~~)~~ inches. Each layer shall be wetted as required and thoroughly compacted to the density requirements as set forth in Subsection 207.03.01, "General."

B. Special care shall be taken in placing and thoroughly compacting the material under the haunches of all pipe culverts.

C. Unless otherwise directed, the backfilling shall continue as directed to the level of the ground or to an elevation ~~six (~~6~~)~~ inches ~~(150 millimeters)~~ above the structure in the case of a pipe culvert in projection, or even with the top of the structure in the case of reinforced concrete box culvert in projection.

D. No construction equipment or other traffic shall be permitted to cross any culvert until a safe minimum depth of fill above the culvert has been placed and compacted in accordance with these specifications. The Contractor shall be solely responsible for protecting the structure from superimposed loading by construction equipment and shall repair any damage to the structure or replace the structure as ordered without extra compensation.

E. Special care shall be taken in backfilling arches, particularly half-circle arches. The arch shall be covered in layers, each layer conforming to the shape of the arch and tamped thoroughly.

207.03.04 PLACING AND COMPACTING OF BIN-TYPE RETAINING WALLS

A. Placing and compacting backfill material for bin-type retaining walls shall progress concurrently with the assembly of the bins, and backfilling around the outer sides thereof shall be kept approximately level with the inside fills. The materials shall be thoroughly tamped and meet the density requirements as set forth in Subsection 207.03.01, "General." Care shall be exercised to completely fill the depressions of stringers and spacers without displacing them from established line and batter.

METHOD OF MEASUREMENT

207.04.01 BLANK

~~0~~4BASIS OF PAYMENT

207.05.01 PAYMENT

A. Unless otherwise provided in the Special Provisions or Proposal, no payment will be made for structure excavation or backfill as such; the cost thereof under normal circumstances being considered as included in the price bid for the construction or installation of the items to which such excavation or backfill is incidental or appurtenant. Payment for such excavation or backfill will be made when the Special Provisions or Proposal provides.

~~05~~TESTING

207.06.01 TESTING

Table 4 - Testing

Spec. Section	Description	Test	Reference Specification ~~A~~and/~~O~~or Test Procedure	Recommended Frequency[1]
207.02.01	Selected Backfill	Sieve Analysis	AASHTO T11 & T27 ~~RTC~~ USS 301 & Special Provisions	1/1000 CY
		Plasticity Index	AASHTO T89 & T90 ~~RTC~~ USS 301 & Special Provisions	1/1000 CY
207.02.02	Granular Backfill	Sieve Analysis	AASHTO T11 & T27 ~~RTC~~ USS 301 & Special Provisions	1/1000 CY
		Soluble Sulfates	AWWA 4500E	1/Type
207.03.01	General	Field Density	AASHTO T310	If Riding Equipment Used: 1/5000 SF/Lift
				If Walk Behind Equipment Used: 1/1000 SF/Lift Per Structure Per Day

~~NOTE: A maximum test table lift is defined as a twelve (12) inch (300 millimeter) layer of compacted material.~~

[1] A maximum testable lift is defined as a ~~twelve (~~12~~)~~ inch ~~(300 millimeter)~~ layer of compacted material.